Concentrated Animal Feeding Operations

WHAT IS THE PUBLIC HEALTH ISSUE?

Concentrated animal feeding operations (CAFOs) are agricultural facilities that house and feed a large number of animals in a confined area for 45 days or more during any 12-month period. Federal regulations require CAFOs to carry a permit and to develop nutrient-management plans designed to keep animal waste from contaminating surface water and groundwater. The number and type(s) of animal(s) the operation houses and the extent to which waste from the operation may pollute surface water and groundwater determine whether Environmental Protection Agency (EPA) considers a feeding operation to be a CAFO. In 2003, fewer than 10% of the nation's 238,000 animal feeding operations were CAFOs, yet CAFOs accounted for more than half of the meat production in the United States, according to EPA.

Pollutants possibly associated with manure-related discharges at CAFOs include antibiotics, nutrients (e.g., ammonia and nitrogen), pesticides, hormones, solids (e.g., feed and feathers), and trace elements (e.g., arsenic and copper). Some of these pollutants may affect human health directly, while others, such as antibiotics and solids, may affect human health indirectly by encouraging the growth and development of potentially harmful plants and organisms. In studies of CAFOs, CDC has shown that chemical and infectious compounds from swine and poultry waste are able to migrate into soil and water near CAFOs. Scientists do not yet know whether or how the migration of these compounds affects human health.

People who work with livestock may develop adverse health effects, including chronic and acute respiratory illnesses and musculoskeletal injuries, and may be exposed to infections that travel from animals to humans. Residents in areas surrounding CAFOs report nuisances, such as odor and flies.

WHAT HAS CDC ACCOMPLISHED?

To find out whether or how these and other substances from CAFOs affect human health, CDC is:

- Studying CAFOs to learn how nutrients, microbes, antibiotics, and antibacterial resistance could move from CAFOs to groundwater or surface water,
- Comparing water samples from within 1 mile of CAFOs to samples from areas surrounding conventional farms to determine whether and how the levels of microbes and nutrients and the patterns of antibacterial resistance differ,
- Developing a pilot geographic information system that will allow researchers to map CAFO data, and
- Determining whether a recent hurricane caused chemicals, microbes, and antibiotics from CAFOs to contaminate drinking-well water.

WHAT ARE THE NEXT STEPS?

CDC will continue to study how nutrients, microbes, antibiotics, and antibacterial resistance may move from CAFOs to groundwater or surface water. On the basis of findings from these studies, CDC will develop an agenda for studying the possible human health effects associated CAFO discharges.

For information on this and other CDC and ATSDR programs, visit www.cdc.gov/programs. December 2004